

FOREWORD

The European Microwave Conference dates back almost 30 years. This year, for the first time, EuMC is coming to Jerusalem. We in Israel are honoured and privileged to host this prestigious Conference. We are working hard to make it a memorable event, both scientifically and culturally.

Jerusalem is a very unique city with a history of 3000 years, breathtaking beauty and numerous points of interest. A visit in Jerusalem is a visit in history and religion. Keeping this in mind, we are offering various tour packages in addition to the excellent scientific program. In fact, we have devoted Tuesday afternoon to a visit of the old city and a reception by the Mayor in the famous Israel Museum.

The scientific program is of high standard, as is customary in EuMC. We are accommodating around 250 papers in 4 parallel sessions and three poster sessions. Following the decision of the Management Committee to encourage and increase industry participation, we have introduced this year for the first time a new category of application-oriented papers. We were very glad to see that this new category was very successful, and comprises about 25% of the accepted papers. I am sure that industry experts will find interest in them.

An exhibition of microwave products will run in parallel to the Conference. We expect the exhibition to be very successful. In Israel we have both a strong microwave industry and a large need for microwave systems, both military and commercial. Therefore exhibition booths were rented by both Israeli industry and foreign companies.

The Conference program includes, in addition to the submitted papers: 5 focused sessions featuring invited talks on important issues, such as wireless communications, packaging, commercial applications, millimeter waves and active filters. Also, 14 invited speakers, some of the best microwave experts in the world, have agreed to share their knowledge with us on a variety of topics. On Friday, 4 workshops and a short course will take place. These involve interesting and timely topics, and I am sure that many of you will find them worth attending.

Thanks to the importance and prestige of the Conference, we were able to raise substantial sponsorship from Israeli industry, representatives of foreign companies, Israeli government and the USA Army. These donations are very important, and enable us to organize a respectable Conference, and strengthen the social activities, which are an important part of the event.

I wish to express sincere thanks to many individuals who have helped to make this event a reality. In particular, I am grateful to the TPC members and members of the Review Board, who devoted their time to evaluate the submitted papers and enabled the construction of our strong scientific program. Special thanks to the Conference Secretary, Shmuel Auster, who carried with me the burden, and to members of the Local Committee, who were very helpful in promoting the Conference. I am greatly indebted to the organizers of the focused sessions and workshops, who put together an excellent program, and of course, I thank all the authors who have submitted papers.

I warmly invite you to come to Jerusalem in September, and do bring your spouses. I can assure you they will not be bored ... A great scientific, as well as cultural, historical and touristic experience is awaiting you.

Asher Madjar
Conference Chairman

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CONFERENCE INTERNET SITE

For further information, please visit the Conference Internet Site:

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Group 5: Croatia, Cyprus, Greece, Israel, Slovenia, Turkey, Yugoslavia

Group 6: Andorra, Austria, Liechtenstein, Portugal, Spain, Switzerland

Group 7: Belarus, Moldova, Russia

EuMC æ97 CONFERENCE PROGRAM OVERVIEW

SUNDAY, 7 SEPTEMBER, 1997 (Holiday Inn Crowne Plaza Jerusalem Hotel)				
16:00-20:00	Registration			
20:00	Informal ôGet-Togetherö			
MONDAY, 8 SEPTEMBER, 1997 (Jerusalem International Convention Center)				
09:00-10:30	Opening Session			
10:30-11:00	Coffee Break			
11:00-12:40	A1 Multilayer, MCM & Packaging Technology (Focused)	B1 Radar Systems & Circuits	C1 Antenna Applications	D1 Thermal & Noise Modelling of Devices
12:40-14:00	Lunch Break			
14:00-15:40	A2 Mobile & Wireless Systems	B2 Radar Applications	C2 Antenna Structures	P1 Poster Session
15:40-16:10	Coffee Break			
16:10-17:50	A3 Mobile & Wireless Circuits	B3 Packaging & Interconnection Techniques	C3 Microwave Active Filters (Focused)	D3 Non-linear Device Modelling
19:30	Reception hosted by the Organizing Commiittee, sponsored by Hewlett Packard Israel, at the Holiday Inn Crowne Plaza Jerusalem Hotel			
TUESDAY, 9 SEPTEMBER, 1997 (Jerusalem International Convention Center)				
08:30-10:10	A4 Millimeter- Wave Integrated Circuits	B4 Microwave Measurements Applications	C4 Waveguide Discontinuities	P2 Poster Session
10:10-10:40	Coffee Break			
10:40-12:40	Plenary Invited Session I			
12:40-13:40	Lunch Break			
13:40	Tour of the Old City of Jerusalem			
19:30	Visit and reception at the Israel Museum (hosted by the Jerusalem municipality)			

WEDNESDAY, 10 SEPTEMBER, 1997 (Jerusalem International Convention Center)					
08:30-10:10	A5 Millimeter-Wave & Sub-millimeter-Wave Components	B5 Microwave Measurements	C5 Comupter Solution of Field Problems	D5 Active Integrated Circuits	General Microwave Israel Commercial seminar
10:10-10:40	Coffee Break				
10:40-12:20	A6 Microwave Filters	B6 Nonlinear CAD of Microwave Circuits	C6 Millimeter-Wave Automotive Radar I Focused Session	P3 Poster Session	General Microwave Israel (seminar continued)
12:20-14:00	Lunch Break				
14:00-15:30	Plenary Invited Session II				
15:30-16:00	Coffee Break				
16:00-17:40	A7 Planar Cicuits & Filters	B7 Solid State Device Technology	C7 Millimeter-Wave Automotive Radar II Focused session	D7 Active Integrated Components	
19:00	Night tour to Tel Aviv and Jaffa (optional)				
THURSDAY, 11 SEPTEMBER, 1997 (Jerusalem International Convention Center)					
08:30-10:10	A8 Passive Components	B8 Commercial Microwave Sensor Systems Focused session	C8 Wave-guiding Structures I	D8 Integrated Communications Subsystems	
10:10-10:40	Coffee Break				
10:40-12:20	A9 Satellite & Terrestrial Communications	B9 Microwave & Lightwave Interactions	C9 Wave-guiding Structures II	D9 Wireless Market & Technology Above 900 MHz Focused session	
12:20-14:00	Lunch Break				
14:00-15:30	Plenary Invited Session III				
15:30-16:00	Coffee Break				
16:00-17:40	Closing Session and Award of Microwave Prize				
20:00	Conference Dinner and Israeli Folklore Evening at the Holiday Inn Crowne Plaza Jerusalem Hotel (optional)				
FRIDAY, 12 SEPTEMBER, 1997 (Holiday Inn Crowne Plaza Jerusalem Hotel)					
09:00-15:00	4 Parallel Workshops and a Short Course				

SCIENTIFIC PROGRAM (JERUSALEM CONVENTION CENTER)

MONDAY, SEPTEMBER 8, 1997

09:00-10:30

OPENING SESSION

Opening Address

Conference chairman, A. Madjar, Research Fellow, RAFAEL, Israel

Israeli Government Incentive for Industrial R&D

O. Beri, Chief Scientist, Israel Ministry of Industry and Commerce

Microwaves In Your Future

L. Young, Filtronic Comtek, USA

How New Technologies Are Improving Satellite Transponders

J.-L. Cazaux, Grard Floury, Alcatel Espace, Toulouse, France

11:00-12:40 - 4 PARALLEL SESSIONS

FOCUSED SESSION A1 - MULTILAYER, MCM & PACKAGING TECHNOLOGY

Chairman: R.H. Jansen, Dept. of Electrical Engineering, RWTH Aachen Technical University, Germany

A1.1. A Concept of Microwave Design Automation Based on Three-Dimensional Masterslice MMIC Technology

I. Toyoda, Japan

A1.2. T/R Module Packaging A Challenge for the Future MW System Development

W. Bösch, Germany

A1.3. Evaluation of Glob Top Encapsulated Active Structures for Millimeter Wave Applications

G. Baumann, Germany

A1.4. Innovative Multilayer Technologies for Active Phased Array Antennas

B. Ledain, France

SESSION B1 - RADAR SYSTEMS & CIRCUITS

Chairman: L.P. Ligthart, Fac. of Electrical Engineering, Delft University of Technology, The Netherlands

B1.1. Motion Monitoring with a Millimeter Wave Radar Sensor

T. Troll, J. Detlefsen, Germany

B1.2. Collision Avoidance Radar Able to Differentiate Objects

P. Swart, L.R. Nieuwkerk, The Netherlands

B1.3. A Planar Microwave Phase Discriminator

B. Stec, A. Rutkowski, Poland

B1.4. A Novel Low Noise Active Circuit Replacement Criteria for Parallel Fed Large Scale Active Antenna Arrays

S. Demir, C. Toker, A. Hizal, Turkey

B1. 5. A High Precision Analog Frequency Ramp Generator Using a Phase-Locked-Loop Structure

T. Musch, B. Schiek, Germany

Monday, September 8, 1997 (Cont'd)

SESSION C1 - ANTENNA APPLICATIONS

Chairman: **I. Koffman**, Orbit, Netanya, Israel

- C1.1. Dual Shaped Reflector Antenna for Airport CW Radar**
J. Meshy, M. Negev, Israel
- C1.2. Electrical and Mechanical Design of the Amos Communication Antenna Subsystem**
M. Lieke, C. Hunscher, T. Kutscheid, E. Ze'evi, Germany
- C1.3. Novel Retrodirective Beam Formation Techniques**
S.L. Karode, V.F. Fusco, UK
- C1.4. Lumped Coupled Ring Antenna Array**
D.E.J. Humphrey, V.F. Fusco, UK
- C1.5. Microstrip Array Antenna for Secondary Radar Applications**
I.E. Timofeev, S.C. Song, G.A. Evtiouchkine, Korea

SESSION D1 - THERMAL & NOISE MODELLING OF DEVICES

Chairman: **P. Herczfeld**, ECE Dept., Drexel Univ., Philadelphia, PA, USA

- D1.1. Nonlinear Modeling Including the Self Heating Effect and Load-Pull Measurements of InP/GaAs Power HBTs**
M. Akpinar, T. Sporkmann, I. Wolff, Germany
- D1.2. A Novel Extraction Method for Temperature Dependent Large Signal Equivalent Circuit Model of HBT**
Y.S. Suh, T.M. Roh, Y.S. Kim, J. Shin, B. Kim, South Korea
- D1.3. Thermal Coupling in Multifinger Heterojunction Bipolar Devices**
V. Krozer, M. Schubler, Germany, J.G. De La Fuente, Spain, H.L. Hartnagel, Germany
- D1.4. Influence of the Model Parameters on the Noise Performance of Double-Polysilicon BJTs for Microwave LNA's**
A. Caddemi, M. Sannino, S. Mazzara, Italy
- D1.5. Drain Temperature Dependence on Ambient Temperature for a Cryogenic Low Noise C-Band Amplifier**
S. Munoz, J.D. Gallego, J.L. Sebastian, J.M. Miranda, Spain

14:00-15:40 - 4 PARALLEL SESSIONS

SESSION A2 - MOBILE & WIRELESS SYSTEMS

Chairman: **A. Rosen**, David Sarnoff Research Center, Princeton, NJ, USA

- A2.1. Modelling of Propagation in Outdoor Microcells at 62.4GHz**
A. Hammoudeh, E. Grindrod, UK, M.G. Sanchez, Spain
- A2.2. Unified Approach to Predict Loss Characteristics in the Urban Microcellular Environments**
N. Blaunstein, M. Levin, Israel
- A3.3. Characterization of Mm-Wave Indoor Propagation with Directive Antennas**
G. Riva, V. Degli-Esposti, E. De Ponti, L. Ferrucci, E. Papa, Italy
- A4.4. A New Technique for Performance Improvement of Mobile Radio Systems**
M. Pejanovic, Z. Veljovic, Yugoslavia
- A5.5. Interoperable 5.8 GHz DSRC Systems As Basis for Europeanwide ETC Implementation**
W. Grabow, W. Dettlfsen, Germany

Monday, September 8, 1997 (Cont'd)

SESSION B2 - RADAR APPLICATIONS

Chairman: J. Dettelfson, Technical University of Munich, Germany

- B2.1. Design and Performance of the Transmit/receive Module and the Tile Subsystem of Advanced Synthetic Aperture Radar (ASAR) for ENVISAT Satellite**
A. Cazal, J.L. Cazaux, C. Sahuc, P. Ginestet, France
- B2.2. The 500-KW CW X-Band Goldstone System Radar**
A. Bhanji, USA
- B2.3. A Headway Control System Concept Using Dual-Mode Millimeter-Wave Radar**
K. Konno, S. Koshikawa, Japan
- B2.4. Wave Pattern of a Buried Leaky Coaxial Cable Under Local Inhomogeneous Conditions**
N. Blaunstein, Z. Dank, M. Zilbershtein, Israel
- B2.5. Radar Study of Polarization Structure of Precipitation**
F.J. Yanovsky, C.M.H. Unal, Netherlands, V.K. Korban, Ukraine

SESSION C2 - ANTENNA STRUCTURES

Chairman: W. K. Gwarek, Inst. of Radio-Electronics, Warsaw University of Electronics, Poland

- C2.1. A Comprehensive Study of Losses in Mm-Wave Microstrip Antenna Arrays**
A. Sabban, Israel
- C2.2. A Whispering Gallery Mode Transducer Using Microstrip-Slot Antenna Exciter**
F. Volgyi, G. Reiter, T. Berceli, G. Veszely, Hungary
- C2.3. The Analysis of Medium Sized Arrays of Complex Elements Using a Combination of FDTD and Reaction Matching**
C.J. Railton, G.S. Hilton, UK
- C2.4. A Ring-Laser Type Quasi-Optical Oscillator Using Leaky-Wave Antenna**
W. Fu, Y. Qian, T. Itoh, USA
- C2.5. Active Wideband Antenna With Circular Polarization**
A. Nesic, S. Jovanovic, Yugoslavia

SESSION P1 (POSTERS)

- P1. 1. Characterisation of Schottky Diode Performance by Numerical Simulation Couples With Harmonic Balance**
J.G. De La Fuente, J.G. Menoyo, E. Gonzalez, Spain, V. Krozer, C.I. Lin, Germany
- P1. 2. HTS/Ferroelectric CPW Structures for Voltage Tuneable Phase Shifters**
O.G. Vendik, E.F. Carlsson, Sweden, P.K. Petrov, Russia, R.A. Chakalov, S. Gevorgian, Z. Ivanov, Sweden
- P1. 3. Electromagnetic Shielding Effects Using Chiral and Other Complex Materials**
A. Sihvola, M. Ermutlu, Finland
- P1. 4. 140 GHz Transmitters Using Magnetrons With Cold Secondary-Emission Cathode**
V.D. Naumenko, V.A. Volkov, D.M. Vavriv, V.Y. Semenuta, Ukraine, K. Schuenemann, Germany
- P1. 5. Multifrequency Modes and Output Signal Modulation-Type BWTs**
B.P. Yefimov, M.V. Milcho, G.Ya. Levin, Ukraine
- P1. 6. Channel Dropping and Branching Filters Using NRD-Guide for Millimeter - Wave Integrated Circuits**
T. Yaginuma, T. Yamaguchi, T. Fukuda, I. Ohtomo, Japan
- P1. 7. Monolithic Artificial Transmission Line Balanced Frequency Doublers**
P. Kangaslahti, P. Alinikula, V. Porra, Finland
- P1. 8. Ka-Band MESFET Frequency Quadrupler with Low Group Delay Variation**
Z. Nativ, K. Albert, S. Matarasso, Israel
- P1. 9. Analysis of Circular Waveguides With Azimuthally Magnetized Ferrites**
K.P. Ivanov, R. Pregla, Germany
- P1.10. UTD-Based Path Loss Prediction With Experimental Validations for Micro-Cellular Mobile Radio Communications**
W. Zhang, J. Lahteenmaki, Finland

Monday, September 8, 1997 (Cont'd)

- P1.11. Regular Linearization Principle for Nonlinear Circuits**
Y.M. Bruck, Israel
- P1.12. Nonlinear Impedance Linearizations by the Same Nonlinear Impedance**
Y.M. Bruck, Israel
- P1.13. Nonlinear Impedance Linearization by Linear Impedance**
Y.M. Bruck, Israel
- P1.14. Development of a 30 GHz, Wireless LAN Transmit/receive Module**
M.G. Stubbs, C. Glaser, H. Do Ky, C.J. Verver, L. Shafai, J.S. Wight, Canada
- P1.15. Free-Electron Laser Type Oscillator for VHF and UHF Ranges**
R. Drori, E. Jerby, Israel
- P1.16. Frequency Tunable MESFET Active Patch Antenna/Oscillators**
W. Wang, L.W. Pearson, USA
- P1.17. Source of Millimeter Waves for Compact Electron LINACS**
V.D. Yeremka, O.P. Kulagin, G.I. Churjumov, N.I. Ayzatsky, Ukraine
- P1.18. 2 to 18 GHz Triple Balanced Uniplanar Mixer for MMIC Implementation**
A. Milano, Israel
- P1.19. Summation Topologies for High Power Amplifier Based on MMIC Technology**
R. Shavit, D. Gabay, M. Garzon, Israel
- P1.20. An Automated Emulator of Movil Satellite Link**
C. Briso, J.I. Alonso, Spain
- P1.21. Non-Linear Photonic Mixers for Up and Down-Converting Links Based on Mach-Zehnder Intensity Modulators**
J.M. Fuster, J. Marti, V. Polo, Spain
- P1.22. Efficient Determination of Nonlinear Microwave Circuits Operating Regions**
I. Barbancho-Pérez, I. Molina-Fernández, Spain
- P1.23. Wideband Analytical Model of an Open-Ended Microstrip Line Under Illumination**
M. Serres, I. Huynen, A. Vander Vorst, Belgium
- P1.24. Noise and Loss Characteristics of Microwave Direct Modulated Optical Links**
I. Frigyes, I. Habermayer, B. Molnar, Hungary, A. Seeds, UK, F. Som, Hungary
- P1.25. Simulation of Linear and Non-Linear Characteristics of High-Tc Superconducting Resonators and Filters**
O.G. Vendik, I. Vendik, Sweden, D. Kaparkov, M. Gubina, Russia
- P1.26. Efficient Determination of Nonlinear Microwave Circuits Operating Regions**
I. Barbancho-Pérez, I. Molina-Fernández, Spain
- P1.27. A Simplified Physics-Based Quasi-Static MSM Photodiode Model**
M. Djebbari, G. Kompa, A. Stolze, Germany
- P1.28. An Improved Physics-Based Nonquasi-Static FET-Model**
I. Schmale, G. Kompa, Germany
- P1.29. Prediction of the Performance of a High Bit Rate Optical Communications Link Using a Physics Based Model for the Laser Diode**
J. Barnard, UK

16:10-17:50 - 4 PARALLEL SESSIONS

SESSION A3: MOBILE & WIRELESS CIRCUITS

Chairman: D. Vanhoenacker, Université Catholique de Bâtiment Maxwell, Louvain-la-Neuve, Belgium

A3.1. Linearization of Microwave Emitters Using an Adaptive Digital Predistorter

E.G. Jeckeln, F.M. Ghannouchi, M. Sawan, Canada

A3.2. Six-Port Direct Conversion Receiver

J. Hyvrylainen, Finland

A3.3. Modulation Imperfections in IS54 Dual Mode Cellular Radio

A. Brilliant, Israel

A3.4. A GaAs MMIC Digital Phase Modulator

G. Avitabile, A. Cidronali, C. Salvador, G. Manes, Italy

A3.5. Radiation from Directive Antennas Close to Human Tissue

R. Leijon, Z. Sipus, P.S. Kildal, Sweden

SESSION B3: PACKAGING & INTERCONNECTION TECHNIQUES

Chairman: O.G. Vendik, Fac. of Electrical Engineering, St. Petersburg Electrotechnical University, Russia

B3.1. Improving of High-Speed Modules by an Advanced Chip-In Board Assembly

G. Hanke, W.D. Nohr, Germany

B3.2. RF and DC Multilayer: the Multi Function Concept

P. Langlois, Netherlands

B3.3. Air Bridge Based Planar Hybrid Technology for Microwave and Millimeter Wave Applications

E. Wasige, G. Kompa, F. Van Raay, I.W. Rangelow, W. Scholz, F. Shi, R. Kassing, R. Meyer, M.C. Amann, Germany

B3.4. Scattering Parameters and Mode Conversion in Asymmetric CPW-Microstrip Overlap Transitions

L. Kadjr, P. Pannier, F. Huret, P. Paleczny, P. Kennis, France

B3.5. Analysis of Transients in Coupled Tapered Lossy and Frequency-Dependent Transmission Lines Using SPICE

J.I. Alonso, J.M. Gomez, Spain

FOCUSED SESSION C3: MICROWAVE ACTIVE FILTERS

Chairman: B. Kapilevich, Microwaves & Antennas Dept., Siberia State Academy of Telecommunications, Novosibirsk, Russia

C3.1. Low-Noise Microwave Active Filters In Planar Realizations

W. Menzel, Microwave Techniques, University of Ulm, Germany

C3.2. A Variety of Approaches to Design Microwave Filters

B. Kapilevich, Microwaves & Antennas Dept., Siberia State Academy of Telecommunications, Novosibirsk, Russia

C3.3. Microwave Active Filters For Wireless Applications: System Approach

P. Alinikula, Nokia Research Center, Helsinki, Finland

Monday, September 8, 1997 (Cont'd)

SESSION D3: NON-LINEAR DEVICE MODELLING

Chairman: F. Giannini, Universita Degli Studi di Roma, Italy

- D3.1. A New Simple Extraction Method for Higher Order Components of Channel Current in GAAS MESFET**
T.M. Roh, Y.S. Kim, Y.S. Suh, W.S. Park, B. Kim, South Korea
- D3.2. A Finite-Memory Nonlinear Model for Microwave Electron Devices**
F. Filicori, G. Vannini, A. Santarelli, Italy
- D3.3. Large Signal and Noise Modeling of HEMT Devices Including Frequency and Temperature Effects**
F. Sinnesbichler, T. Felgentreff, G.R. Olbrich, Germany
- D3.4. Generic Determination of Large-Signal HEMT Model**
K. Shirakawa, N. Okubo, Japan
- D3.5. Cellular Automaton Particle Simulation and Sensitivity Analysis of GaAs-MITTAT-Diodes for Operation at 200 GHz**
Liebig, M. Claassen, K. Schunemann, Germany

08:30-10:10 - 4 PARALLEL SESSIONS

SESSION A4: MILLIMETER-WAVE INTEGRATED CIRCUITS

Chairman: E. Kollberg, Dept. of Microwave Technology, Chalmers University of Technology, Gothenberg, Sweden

- A4.1. Monolithic Up/Down Converters for Millimeter-Wave Wireless Networks**
M. Madihian, L. Desclos, K. Maruhashi, K. Onda, M. Kazuhara, Japan
- A4.2. Low-Loss High-Power Ka-Band Multipole Multithrow MMIC PIN Switch**
M. Daly, D. Whitefield, Z. Bogan, D. Bartle, J. Delconte, USA
- A4.3. Coplanar Switches in PHEMT Technology from X- to W-Band**
K. Zufle, W.H. Haydl, H. Massler, R. Bosch, J. Schneider, Germany
- A4.4. A Novel Multi-Chip Module Unified Transmitter and Receiver at 51 GHz**
N. Yakuwa, M. Akaishi, T. Kaneko, T. Saryo, Japan
- A4.5. Micro-Machined GCPW Resonators and Filters for Applications at Millimetric Wave Frequencies**
S.J. Spiegel, Israel

SESSION B4: MICROWAVE MEASUREMENTS APPLICATIONS

Chairman: J. Modelski, Inst. of Radioelectronics, University of Warsaw, Poland

- B4.1. Wideband Indoor Radio Channel Measurements at 5.3 GHz**
J. Kivinen, P. Aikio, R. Gruber, P. Vainikainen, Finland
- B4.2. Time Domain Antenna Measurements: Implementation and Verification of a Novel Technique**
R.V. De Jongh, M. Hajian, L.P. Ligthart, The Netherlands
- B4.3. A Millimeter-Wave Frequency Extender for Microwave Network-Analyzers**
B. Geck, J. Marquardt, Germany
- B4.4. Multimode TRL Calibration Technique for Multiconductor Networks Characterization**
C. Seguinot, P. Pannier, F. Huret, P. Kennis, J.F. Legier, France
- B4.5. A Membrane Probe for Testing High Power Amplifiers at Mm-Wave Frequencies**
S. Basu, P. Nussbaumer, E. Strid, USA

SESSION C4: WAVEGUIDE DISCONTINUITIES

Chairman: F. Hanna, France Telecom, CNET, Issy-les-Moulineaux, France

- C4.1. Intercepting and Identification of the Vehicle's Technological Characteristics by Radar and AAS Systems**
A.V. Glushkov, V.A. Efimov, T. Buyadgi, I. Shpinareva, Ukraine
- C4.2. Analytical and Full-Wave Characterization of Multimode Waveguide Discontinuities**
P. Pannier, F. Huret, J.F. Carpentier, C. Seguinot, P. Kennis, France
- C4.3. A Matrix Decomposition Technique for the Efficient Analysis of Complex Waveguide Networks**
F. Alessandri, R. Sorrentino, Italy
- C4.4. Rigorous Computation of Electromagnetic Fields in Axial-Symmetric Aperture-Coupled Cavities Using Frequency and Time Domain Modal Analysis**
J. Jelonnek, K. Schunemann, Germany
- C4.5. Scattering of TE₁₁ Mode from Two Asymmetric Ridges of Finite Thickness in a Circular Waveguide**
S. Amari, Canada, R. Vahldieck, Switzerland, J. Bornemann, Canada

SESSION P2 (POSTERS)

- P2. 1. Design of Multilayer 2-Pole Band Pass Filter With Additional Poles Using Closed Loop Resonator**
I.S. Kim, H.J. Hong, D.P. Jang, C.S. Kim, M.H. Jung, D. Ahn, Korea
- P2. 2. 2.4 GHz Monolithic Microwave Mixers with Lump Balanced Circuits**
C.F. Liao, Y.C. Chiang, Taiwan, R.O.C.
- P2. 3. Antennas Analysis Using Edge Elements and Spherical Modes Expansion**
E. Richalot, M.F. Wong, V. Fouad-Hanna, H. Baudrand, France
- P2. 4. Polarization Transformer Constructed from Chiral Slabs and Soft and Hard Surface**
P. P. Puska, A. J. Viitanen, Finland
- P2. 5. Microwave Ferroelectric Superconducting Phase Shifter**
F. Abbas, J.C. Gallop, UK
- P2. 6. Susceptibility Analysis of Arbitrarily Shaped 2-D Dielectric Screens Using the Generalized Scattering Matrix Method**
J.V. Balbastre, L. Nuno, M. Bort, E. De Los Reyes, Spain
- P2. 7. Conductive Substrate Losses in Coplanar and Microstrip Transmission Lines**
W.H. Haydl, Germany
- P2. 8. Modelling of Multichip module Interconnections by the TLM Method and Systems Identification**
T. Mangold, P. Russer, Germany
- P2. 9. Lossy Coupling Between Microwave Resonators**
A. Abramowicz, Germany, K. Derzakowski, Poland
- P2.10. Monolithic Filters and Frequency-Separation Devices Based on the Ceramic Resonators**
V.G. Tsykalov, A.G. Belous, O.V. Ovchar, Y.D. Stupin, Ukraine
- P2.11. Transient Analysis of Printed Circuit Board Layouts Using a Time Domain Solution of Kirchhoff's Network Equations**
C.S.L. Goh, C.J. Railton, UK
- P2.12. Multiple Probe Nearfield Scanning for EMC-Investigations**
H.O. Ruoss, J. Christ, F.M. Landstorfer, Germany
- P2.13. TEM-Modes in Slot-Coupled Waveguides**
A.S. Omar, C. Rieckmann, A. Jostingmeier, Germany
- P2.14. Enhanced Gain Patch Antennas at Millimeter Waves**
V. Rojansky, M. Winebrand, Israel
- P2.15. Synthesis of Circularly Polarized Radial Line Slot Array**
M. Sierra, M.V. Isasa, A.G. Pino, M.C. Sierra, L. Landesa, Spain
- P2.16. Microstrip Patch Array for the Mobile Terminal Antenna of a Mobile Communication System**
T. Rutkowski, Poland, C. Peixeiro, Portugal
- P2.17. Analysis of the Calculated Spatial Directive Patterns of Vibrator Antennas with the Rectangular Screen**
N.P. Yeliseyeva, Ukraine
- P2.18. Profile Inversion of Stratified Dielectric Media Using the Two-Step Reconstruction**
V.A. Mikhnev, P. Vainikainen, Finland
- P2.19. The Shielding Effects of Lossy Dielectric Material for Three Layered Elliptical Human Model**
O. Hashimoto, S. Nishizawa, Japan
- P2.20. Low Power Microwave Effects on Erythrocytes Membranes**
G. Sajin, E. Kovacs, T. Savopol, A. Dinu, M. Sajin, Romania
- P2.21. A Laser Radar for Precise 2D- and 3D-Object Imaging**
G. Kompa, A. Biernat, Germany
- P2.22. Spatially-Temporal Variability of Radar Backscattering Signal Intensity from Different Landscapes in MM-Wave Range**
Y.F. Vasiliev, B.D. Zamaraev, A.N. Roenko, Ukraine
- P2.23. Ka Band Noise Source with Controlled Characteristics**
V.A. Rakityansky, Ukraine

Tuesday, September 9, 1997 (Cont'd)

- P2.24. Scan-Optimized Integrated Lens Antennas**
M.J.M. Van der Vorst, P.J.I. De Maagt, M.H.A.J. Herben, The Netherlands
- P2.25. Mutual Coupling Between Transverse Slots in Cylindrical Structures**
J. Wettergren, Sweden
- P2.26. A Simple Approach to a Statistical Path-Loss Model for Indoor Communications**
C. Perez-Vega, J.L. Garcia G., Spain
- P2.27. Analytical Analysis of Antennas in the Presence of a Multilayered Dielectric Sphere With Application to Hand Held Terminals**
I. Shtrikman, N. Henze, H. Fruechting, H. Lindenborn, Germany
- P2.28. Microwave Ferroelectric Superconducting Phase Shifter**
F. Abbas, J.C. Gallop, UK
- P2.29. A Low Loss Phase Shifter for Dielectric Waveguide Using Asymmetrical Guides**
P.R Young, R.J. Collier, P.G.G. Bianconi, UK

10:40-12:40 - PLENARY INVITED SESSION I

Chairman: T. Berceli, Microwave Communications Dept., Technical University of Budapest, Hungary

- PI.1 Optical Synthesis Of Microwave Signals**
A. Seeds, Dept. of Electronic & Electrical Engineering, Univ. College London, UK
- PI.2. Millimeter Wave Fiberoptic Links**
P. Herczfeld, ECE Dept., Drexel University, Philadelphia, PA, USA
- PI.3 Interconnects and Packaging For MMICÆs**
W. Menzel, Universitat Ulm, Germany
- PI.4 The Israeli GaAs Foundry**
I. Lewin, Elta Ltd., Ashdod, Israel

WEDNESDAY, SEPTEMBER 10, 1997

08:30-10:10 - 4 PARALLEL SESSIONS AND SEMINAR

SESSION A5: MILLIMETER-WAVE & SUB-MILLIMETER-WAVE COMPONENTS

Chairman: R. Shavit, Dept. of Electrical Engineering, Ben-Gurion University, Beer Sheva, Israel

- A5.1. A 40-GHz MMIC Frequency Divider-by-Two**
K. Koivunen, M. Jenu, Finland
- A5.2. Improvement of the Generic Approach to Optimum Design of Microwave and Millimeter Wave Subharmonic Mixers**
A. Madjar, I. Shapir, S. Zoref, Israel
- A5.3. A Ka-Band Compact Integrated Transmitter for VSAT Satellite Communication Ground Terminal**
A. Sabban, A. Madjar, I. Shapir, D. Behar, Israel
- A5.4. Planar Integrated Waveguide Diplexer for Low-Loss Millimeter-Wave Applications**
W. Menzel, Germany, F. Allesandri, Italy, A. Plattner, Germany, J. Bornemann, Canada
- A5.5. Performance Analysis of a Submillimeter Wave Hologram CATR**
T. Hirvonen, J. Ala-Laurinaho, A.V. Raisanen, Finland

SESSION B5: MICROWAVE MEASUREMENTS

Chairman: A. Raisainen, Radio Lab., Helsinki University of Technology, Espoo, Finland

- B5.1. The Determination of on-Wafer Noise Parameters at W-Band**
T.A. Alam, R.D. Pollard, C.M. Snowden, UK
- B5.2. Design and Realization of an On-Wafer Two Port Transfer Standard**
G.L. Madonna, A. Ferrero, Italy
- B5.3. Novel Approach to the Characterization of Coaxial-to-Microstrip Transitions**
J. Chramiec, J.K. Piotrowski, Poland
- B5.4. Automatic Measurements of Surface Resistance of Superconductors Using Two Modes in a Dielectric Rod Resonator**
Y. Kobayashi, H. Yoshikawa, Japan
- B5.5. Handset Phone-User Interactions: Polarization Effects**
D. Picard, L. Ahlonsou, J.C. Bolomey, France

SESSION C5: COMPUPTER SOLUTION OF FIELD PROBLEMS

Chairman: Ghione, Dip. Ellectronica, Politecnico di Torino, Italy

- C5.1. A Modified FDTD Model for the Analysis of 3D Curved Cavity With Arbitrary Dielectric Fillings**
Y. Hao, C.J. Railton, UK
- C5.2. A New Approach for the Calculation of Longitudinally Periodic Structures**
M. Walter, U. Muller, A. Beyer, Germany
- C5.3. Efficient Parameter Extraction for 3-D Structures in Layered Dielectric Media**
S. Kapur, D. Long, P. Singh, USA
- C5.4. Interaction Between Microwaves and Nonlinear Materials: An Optimization Procedure Based on Generic Algorithms**
S. Caorsi, A. Massa, M. Pastorino, Italy

Wednesday, September 10, 1997 (Cont'd)

SESSION D5: ACTIVE INTEGRATED CIRCUITS

Chairman: J. Zehentner, Fac. of Electrical Engineering, Czech Technical University, Prague, Czech Republic

- D5.1. A Microstrip Matching Network for Class C Power Amplifiers Optimization**
A.C. Nunes, M.J. Rosario, J. Costa Friere, Portugal
- D5.2. Evaluation of 2nd and 3rd Order Intermodulation Distortion of Cascaded MESFETS**
J.C. Pedro, P.G. Domingues, Portugal
- D5.3. State of the Art Integrated InGaAs/GaAs HBT-DRO With -124 dbc/Hz at 6.7 GHz**
S. Perez, P.M. Butierrez Spain, D. Floriot, P. Maurin, P. Bouquet, J. Obregon, S.L. Delage, France
- D5.4. 2-3 GHz Silicon MMIC Balanced Oscillators Using on-Chip Active Resonators**
Y. Sun, M. De Kok, J.L. Tauritz, Netherlands, R.G.F. Baets, Belgium
- D5.5. Fixed-Phase Delay Compensation Phase Shifter for Simple Microstrip Implementation**
R. Levin, R. Popovich, G. Lupo, Israel

COMMERCIAL SEMINAR: DIGITALLY TUNED OSCILLATORS (DTO)

General Microwave Israel Corporation (GMIC)

- 08:30 Pick-up from exhibition hall to GMIC (Talpiot, Jerusalem)
- 09:00-10:00 Principles of High Speed, Wideband DTO's
- 10:00-11:00 Fabrication and Testing Techniques
- 11:00-11:30 Summary
- 11:30-12:00 Return to Convention Center

10:40-12:20 - 4 PARALLEL SESSIONS AND CONTINUATION OF SEMINAR

SESSION A6: MICROWAVE FILTERS

Chairman: S. Auster, Elisra Electronic Systems Ltd., Bene Beraq, Israel

- A6.1. A Software Package for the Design of Band-Pass Microwave Generalized Chebyshev Filters with Symmetric or Asymmetric Amplitude Response and Equalized Group Delay**
M. Salazar-Palma, L.E. Garcia Castillo, R. Ramirez-Garcia, M. Burgosgarcia, J.I. Alonso-Montes, J.L. Caceres-Armendar, Spain
- A6.2. Design and Realization of a Dual-Mode Circular Waveguide Filter for Digital Audio Broadcasting (DAB) Applications**
P. Mezzanotte, F. Alimenti, L. Roselli, S. Sordi, Italy
- A6.3. Controllable Attenuation Poles in the Coupled Quarter Wavelength Transmission-Line Filter**
M. Tsuji, N. Kinoshita, H. Shigesawa, Japan
- A6.4. Synthesis and Design of Cascaded Trisection (CT) Dielectric Resonator Filters**
R. Hershtig, R. Levy, K. Zaki, USA
- A6.5. New Type of Planar Resonators with High Quality Factor and Their Applications for MW Pass-Band Filters**
V.N. Keys, A.B. Kozyrev, M.L. Khazov, G.S. Gusev, Russia

SESSION B6: NONLINEAR CAD OF MICROWAVE CIRCUITS

Chairman: M. Sobhy, Electrical Engineering Dept., The Univ. of Kent, UK

- B6.1. New Method for the Evaluation of Linear Subnetwork in Nonlinear Autonomous Microwave Circuit Analysis by Piecewise Harmonic Balance Technique**
M.K. Seo, Y. Kwon, S. Nam, Korea
- B6.2. A Novel Nonlinear Analytical Microwave Oscillator Design Approach Using Signal Space**
D. Elad, A. Madjar, Israel
- B6.3. Analysis of Tight Circuit-Package Coupling by Using the Lumped-Element FDTD Method**
L. Roselli, F. Marrocolo, S. Catena, P. Ciampolini, Italy
- B6.4. Simulating Strong Nonlinear Microwave Circuits Driven by a Large Number of Input Tones**
N.B. De Carvalho, J.C. Pedro, Portugal
- B6.5. A Novel Substitution Algorithm for the Efficient Analysis and Optimisation of Microwave Oscillators**
V. Rizzoli, A. Costanzo, A. Neri, Italy

FOCUSED SESSION C6: MILLIMETER-WAVE AUTOMOTIVE RADAR (I)

Chairman: H. Meinel, Dept. VST1, Daimler-Benz Aerospace AG, Ulm, Germany

- C6.1. A Polarimetric 77 GHz Radar for Automotive Applications**
Joseph Wenger, Daimler-Benz Ag, Forschungszentrum Ulm, Germany
- C6.2. Commercialization of the HIT AICC B-Model Unit**
Eli Shein, Technology & Business Development Highway Information Technologies Ltd. Kibbutz Yifat, Israel
- C6.3. Millimeter Wave Automotive Products - A Manufacturing Technology Challenge**
Tom Rose, M/A-COM, Lowell, MA, USA

SESSION P3 (POSTERS)

- P3. 1. A X-Band Magnetoresistive Sensor for Active Pulse Power Measurements**
V. Vountesmeri, Mexico, K. Gura, Ukraine, A.V. Chenakin, Mexico
- P3. 2. The Method of Waveguide-Junction Resonance for Integrated Ferroelectric Films Investigation**
M.Y. Ilchenko, A. Yushchenko, L. Pereverzeva, Y. Prokopenko, Y. Poplavko, Ukraine
- P3. 3. CAD-Design of Viahole Fed Planar Antennas Using Space Discretizing Field Solvers**
S. Lindenmeier, B. Bader, P. Russer, Germany
- P3. 4. Antennas Analysis Using Edge Elements and Spherical Modes Expansion**
E. Richalot, M.F. Wong, V. Fouad Hanna, H. Baudrand, France
- P3. 5. Numerical Analysis of the Whispering-Gallery-Mode Dielectric Filter in a Dielectric Waveguide**
A.I. Nosich, S.V. Boriskina, Ukraine
- P3. 6. The Telegraph Equation Development and the Results of the Scattering Matrix Computer Simulation for Layers Multistrip Microwave Devices on the Surface**
A. Gipsman, Israel
- P3. 7. A New Global Time Domain Electromagnetic Analysis of a Strongly Coupled Two-Element Active Antenna**
K. Guillaouard, M.F. Wong, V.F. Hanna, J. Citerne, France
- P3. 8. Simulation of Large Electromagnetic Structures with an Application to Quasi- Optical Amplifier**
S.M. El-Ghazaly, S.M. Hammadi, USA
- P3. 9. Circuit Design Based on Scaleable Elements**
J. Heimark, Y. Thodesen, Norway

Wednesday, September 10, 1997 (Cont'd)

- P3.10. Measurement of a Novel 40 GHz Planar Antenna Using Planar Near-Field Scanning Techniques and a Hologram CATR**
T. Sehm, T. Hirvonen, Finland
- P3.11. Evaluation of Unloaded the Q-Factor of a Resonator from Impedance Measurements**
S. Gevorgian, E. Kollberg, E. Carlsson, Sweden
- P3.12. A Novel Wavemeter for Dielectric Waveguide**
P.R. Young, R.J. Collier, UK
- P3.13. A Simplified Procedure for Impedance Measurement Using the Multi-State Radiometer**
W. Wiatr, M. Schmidt-Szalowski, Poland
- P3.14. Response Time and Power Handling Capability of Microwave Controlling Devices Based on Ferroelectric Films**
A.B. Kozyrev, O.I. Soldatenkov, T.B. Samoilova, A.V. Ivanov, Russia
- P3.15. Simulation of Self-Heating Hbts Based on Isothermal Gummel-Poon Model**
Y. Zhu, J.K. Twynam, K. Kishimoto, M. Yagura, M. Hasegawa, T. Hasegawa, K. Sakuno, A. Yamada, E. Suematsu, Japan
- P3.16. The Superconducting Microwave Devices Based on S-N Transitions in HTS Films**
I. Vendik, Sweden, A.B. Kozyrev, M. Gaidukov, V. Sherman, V. Svishchev, S. Razumov, D. Dovgan, Russia, S. Bolioli, B. Dirassen, France, A. Zaitz, Germany
- P3.17. A New Method for Model Parameter Identification**
J. Ladvanszky, A.G. Hilt, Hungary
- P3.18. Direct Extraction of the Non-Linear Model for Two-Port Devices from Vectorial Non-Linear Network Analyzer Measurements**
D. Schreurs, J. Verspecht, B. Nauwelaers, M. Van Rossum, Belgium
- P3.19. Synthesis of Filters with Negative Admittance According to Reflection with Consideration of Dissipative Losses**
M.E. Ilchenko, M.N. Guseva, Y.V. Kalinichenko, Ukraine
- P3.20. Monolithic Chips Sets for Linearizer Pre-Amplifier Solid State Driver Units to TWTs**
U. Güttich, P. Nüchter, M. Fillerböck, R. Gühl, K.E. Schmiegner, Germany
- P3.21. A Combination of Integral Method and FD/TLM Method for Efficient Solutions of EMC Problems**
L. Pierantoni, S. Lindenmeier, P. Russer, Germany
- P3.22. Nonlinear Methods for Microwave Oscillator Design**
G. Olbrich, P. Russer, Germany
- P3.23. A Basic Concept of Microwave Design Automation Based on Three-Dimensional Masterslice MMIC Technology**
I. Toyoda, T. Tokumitsu, M. Aikawa, Japan
- P3.24. Improving of High-Speed Modules by an Advanced Chip-in-Board Assembly**
Gerhard Hanke, W.-D. Nohr, Germany
- P3.25. Waveguide Component Analysis by a Generalized Network Approach**
L.B. Felson, P. Russer, Germany
- P3.26. General Analysis of Shielded Transmission Lines With Cylindrical Geometry Conductors**
I.M. Yakover, Israel
- P3.27. Designing an Adjustable Two-Section Phase Rotator**
Y. Koral, Israel

Wednesday, September 10, 1997 (Cont'd)

14:00-15:30 - PLENARY INVITED SESSION

Chairman: M. Salazar-Palma, Dpto. Ssr E.T.S.I. De Telecomunicacion, Universidad Politécnica de Madrid, Spain

- P11.1 Biologically Inspired Polarization-Difference Imaging**
N. Engheta, Dept. of Electrical Engineering Univ. of Pennsylvania, Moore School of Electrical Engineering, PA, USA
- P11.2 Biological Effects and Medical Applications of Microwaves**
A. Rosen, IEEE-MTT Distinguished Lecturer, David Sarnoff Research Center, Princeton, NJ, USA
H. Rosen, Division of Neonatology, St. Peters Medical Center, Princeton, NJ USA;
A. Vandervorst, Microwaves U.C.L., Louvain-La-Neuve, Belgium
- P11.3 Recent Progress in Active Integrated Antennas**
T. Itoh, Univ. of California, School of Engineering & Applied Science, Electrical Engineering Dept., LA, CA, USA

16:00-17:40 - 4 PARALLEL SESSIONS

SESSION A7: PLANAR CIRCUITS & FILTERS

Chairman: P. Russer, Munich Technical University, Germany

- A7.1. A UHF Bandpass Filter on Microstrip**
E. Segall, Israel
- A7.2. New Simple CAD Model for Series Stubs on Planar Printed Transmission Lines**
J.R. Bratherton, R.D. Pollard, S. Iezekiel, M.J. Thornton, UK
- A7.3. Integrated Microwave Inductors on Silicon-On-Insulator Substrate**
I. Huynen, J.P. Raskin, R. Gillon, D. Vanhoenacker, J.P. Colinge, Belgium
- A7.4. Glass Air-Gap Transmission Lines on Silicon for Microwave Integrated Circuits**
S.M. El-Ghazaly, J.C.P. Chuang, Y.H. Zhang, USA
- A7.5. Ferroelectric Films: Nonlinear Properties and Applications in Microwave Devices**
A.B. Kozyrev, T.B. Samoilova, O.I. Soldatenkov, O.Y. Buslov, E.K. Hollmann, V.E. Loginov, A.M. Prudan, G. Koepf., K. Mueller, T. Rivkin, Russia

SESSION B7: SOLID STATE DEVICE TECHNOLOGY

Chairman: G. Salmer, Dept. Hyperfrequences et Semiconducteurs Institut d'electronique et de Microélectronique du Nord, Villeneuve D'ascq, France

- B7.1. 7.12 W/mm (Up to 1.7w) CW X-Band InGaAs/GaAs HBTs : Top Heat Sink and Topology Influence**
D. Floriot, S.L. Delage, E. Chartier, H. Blanck, M.A. Poisson, France
- B7.2. High Performance Double Recessed Al_{0,2} Ga_{0,8} As / In_{0,25} Ga_{0,75} As PHEMTs for Microwave Power Applications**
W. Marsetz, A. Hulsmann, T. Kleindienst, S. Fischer, M. Demmler, T. Fink, K. Kohler, M. Schlechtweg, Germany
- B7.3. TUNNETT Operation Mode in Silicon**
J. Jorke, G. Kahmen, J.F. Luy, Germany
- B7.4. High-Performance Power PHEMT for Wireless Communications**
Y.A. Takchenko, L. Kapitan, L. Leung, D. Mitchell, D. Bartle, USA
- B7.5. A Silicon CMOS Monolithic RF and Microwave Switching Element**
R.H. Caverly, G. Hiller, USA

Wednesday, September 10, 1997 (Cont'd)

FOCUSED SESSION C7 - MILLIMETER-WAVE AUTOMOTIVE RADAR (II)

Chairman: H. Meinel, Dept. VST1, Daimler-Benz Aerospace AG, Ulm, Germany

C7.1. Millimeterwave Technology for Automotive Radar Applications

L. Raffaelli, ARCOM, Salem, NH, USA

C7.2. Panel Discussion (With all the speakers of sessions C6, C7)

SESSION D7: ACTIVE INTEGRATED COMPONENTS

Chairman: J. Costa-Freire, Instituto de Telecomunicaciones, Instituto Superior Tecnico, Lisbon, Portugal

D7.1. BJT Feedback LNA with Input Port Simultaneously Signal and Noise Matched

L. Boglione, R. Pollard, V. Postoyalko, UK

D7.2. FR4 PCB Modulation Transfer MWVCO Up to 16 GHz

C. Buoli, G. Mora, L.A. Cervi, Italy

D7.3. A MMIC -Based Frequency Doubler Module with 20 MW Output Power for a 76 GHz Radar Transmitter

M. Stotz, J. Wenger, Germany

D7.4. 77GHz PHFET-Harmonic-mixer MMIC

A. Schaefer, J.M. Dortu, L. Klapproth, W. Stiebler, G. Boeck, W. Kellner, Germany

D7.5. Design of Microstrip Balanced Mixers for Spurious Outputs Suppression in Ku-Band Satellite Repeaters

A. Suriani, P. Montanucci, P. Ranieri, Italy

08:30-10:10 - 4 PARALLEL SESSIONS

SESSION A8: PASSIVE COMPONENTS

Chairman: T. Itoh, Univ. of California, School of Engineering & Applied Science, Electrical Engineering Dept., LA, CA, USA

- A8.1. Transmitter - Receiver Switch Based on High-Tc Superconducting Film**
A.B. Kozyrev, V.N. Osadchy, M.M. Gaidukov, A.S. Pavlov, Russia, V. Meerovich, Israel
- A8.2. Comb Filters Using an Array of Rods in a Hollow Circular Tube**
G. Macchiarella, G.B. Stracca, R. Ravanelli, A. Giavarini, Italy
- A8.3. On the Modelling of Ceramic Combline RF-Filter**
T. Uusitupa, J. Loukkola, Finland
- A8.4. Miniaturized Dielectric Duplexer Using Tm Triple Mode Resonators for 800MHz Band Cellular Base Station**
J. Hattori, H. Kubo, S. Abe, T. Nishiyama, Y. Ishikawa, Japan
- A8.5. Electrically Controlled Microwave Filters Built on Dielectric Resonators**
Y. Poplavko, M.Y. Ilchenko, Y. Prokopenko, V. Molchanov, D. Tatarchuk, Ukraine

FOCUSED SESSION B8: COMMERCIAL MICROWAVE SENSOR SYSTEMS

Chairman: P. Heide, Dept. ZT Siemens AG, Corporate Technology, Munich, Germany

- B8.1. Technology and Applications of Low-Cost Planar K-Band Sensors**
W. Weidmann, M/A-COM GMBH, European Technology & Application Center (ETAC), Schweinfurt, Germany
- B8.2. Highly Accurate Distance And Velocity Sensor in Coplanar Stripline Technology at 24 GHz for Automotive and Industrial Applications**
G. Trummer, Dept. VSTF, Daimler-Benz Aerospace AG, Munich, Germany
- B8.3. Radar Applications in Level Measurement and Nondestructive Material Testing**
J. Otto, Institut für Angewandte Forschung, Aalen, Germany
- B8.4. An MMIC-Based Microwave Sensor for Accurate Clearance Measurements in Aircraft Engines**
J. Wenger, Dept. F2h/D, Daimler-Benz AG, Forschungszentrum Ulm, Germany
- B8.5. Microwave And Millimeter-Wave-Flip-Chip Modules for Commercial Sensor Applications**
M. Vossiek, P. Heide, Dept. ZT KM1, Siemens AG, Corporate Technology, Munich, Germany

SESSION C8: WAVEGUIDING STRUCTURES I

Chairman: J. Machac, Fac. of Technichal Engineering, Czech Technical University, Prague, Czech Republic

- C8.1. An Accurate Method for the Computation of Radiated Power from Discontinuities in Waveguiding Structures**
T.K. Sarkar, Z.A. Maricevic, USA, M. Salazar-Palma, Spain
- C8.2. An Extension of the NML Simulation to the 3D Spectral Domain Analysis Using Triangular Subdomain Functions**
P. Pannier, L. Kadri, L.B. Kenmei, F. Huret, P. Kennis, France
- C8.3. Excitability of Complex Modes by Practical Feeds on Boxed Stripline Structures**
M.J. Freire, F. Mesa, M. Horno, Spain
- C8.4. A Systematic Investigation of Coplanar Lines and Discontinuities**
W. Menzel, M. Klaiber, Germany
- C8.5. Characteristics of Coupled Microstrip Lines Through a Slot in a Common Ground Plane**
K. Kobayashi, K. Ono, T. Wakabayashi, Japan

Thursday, September 11, 1997 (Cont'd)

SESSION D8: INTEGRATED COMMUNICATIONS SUBSYSTEMS

Chairman: **S. Shonbach**, ELTA, Ashdod, Israel

- D8.1. Monolithic Low Voltage Power-Amplifier for Portable Low Range Transceiver**
F. Fortes, M.J. Do Rosario, J. Costa-Friere, Portugal
- D8.2. Low Noise Monolithic Down Converter for a L Band Mobile Hand Set Terminal**
J. Alves Torres, J. Costa Friere, Portugal
- D8.3. New Configuration for T/R Switches Used in RF Transmitters**
S. Krausz, Israel
- D8.4. RFIC Chipset for High Performance, Cellular Radio Test Equipment**
A. Caliumi, L. Masini, Italy, S.B. Christensen, Denmark, M. Aglietti, Italy
- D8.5. Frequency Doubling Integrated Push-Push Active Microstrip Transponder**
D. Singh, P. Gardner, P.S. Hall, UK

10:40-12:20 - 4 PARALLEL SESSIONS

SESSION A9: SATELLITE & TERRESTRIAL COMMUNICATIONS

Chairman: **J.-L. Cazaux**, Alcatel Espace, Toulouse, France

- A9.1. Development and Fabrication of a Compact Integrated RF-Head for INMARSAT-M Ground Terminal**
A. Sabban, A. Britebard, Y. Shemesh, Israel
- A9.2. Novel C-Band 580w SSPA for Microwave Satellite Communication Earthstation**
M. Ishida, N. Komatsu, K. Wada, M. Kumura, E. Fuziwara, K. Umez, S. Ueda, Y. Doi, D. Kawaguti, Japan
- A9.3. Miniaturized Channel Amplifier for Ku Band Satellite Repeaters**
M.C. Comparini, M. Seghettini, A. Suriani, Italy
- A9.4. A Robust Adaptive Beamformer Based on an Iterative Subspace Projection with Conjugate Gradient Method**
D. Segovia, M. Sierra, Spain
- A9.5. Optimization of Microwave Receivers for Suppression of Single Tone Spurious Interference**
U. Mahlev, J. Gavan, Israel

SESSION B9: MICROWAVE & LIGHTWAVE INTERACTIONS

Chairman: **A. Costanzo**, Facolta di Ingegneria D.E.I.S., University of Bologna, Italy

- B9.1. Utilization of Mach-Zehnder Modulators to Generate Fourth Harmonic Microwave Frequencies - Theory and Experiment**
A. Motamedi, R. Vahldieck, Canada
- B9.2. A New Approach for the Optical Feed of Radio Nodes Utilizing a Microchip Solid State Laser**
P.R. Herczfeld, J. Amarido, J.C. Vieira, USA, T. Berceli, Hungary, V.M. Contarino, USA
- B9.3. True Time Delay Scheme for Continuous Optical Control of Phased Array Antennas Employing Chirped Fiber Gratings**
J.L. Corral, J. Marti, J. Capmany, Spain, R. Laming, M.J. Cole, UK
- B9.4. White-Light Impact on the Microwave Performance of a Light-Sensitive PHEMT**
M. Garcia, L. Bengtsson, H. Zirath, Sweden
- B9.5. Demonstration of Enhanced Performance of HBT As Photodetector**
L.A. De Barros, P.R. Herczfeld, USA, A. Madjar, Y. Betser, D. Ritter, Israel

Thursday, September 11, 1997 (Cont'd)

SESSION C9: WAVEGUIDING STRUCTURES II

Chairman: Y. Leviatan, Dept. of Electrical Engineering, Technion, Haifa, Israel

- C9.1. Multilevel Improvements to Conformal FDTD for S-Parameter Extraction Within Irregularly Shaped Transmission Lines**
M. Celuch-Marcysiak, W.K. Gwarek, Poland
- C9.2. Time-Domain Microwave Transmission Lines and the Non-Radiating Source Problem**
A. Sihvola, Finland, G. Kristensson, Sweden, I. Lindell, Finland
- C9.3. Non-Uniform Wavelets on Adapted Grids for Modelling Edge Singularities**
G. Oberschmidt, A.F. Jacob, Germany
- C9.4. Evolution of New Real and Complex Improper Solutions of the Slotline Dispersion Equation**
J. Zehentner, J. Machac, M. Migliozi, Czech Repub.
- C9.5. Application of the Eigenmode Transformation Technique to the Analysis of Open Guiding and Radiating Structures**
A.S. Omar, C. Rieckmann, A. Jostingmeier, Germany

FOCUSED SESSION D9 - Wireless Market & Technology Above 900 MHz

Chairman: P. Jackson, Microwave Engineering Europe, London, UK

- D9.1. Mobile Communications in Europe: Current Status and Future Prospects**
Paul Jackson, Microwave Engineering Europe, London, UK
- D9.2. RF Components for Mobile Satellite Services**
TBD, Germany
- D9.3. Technologies for Future Generation of Multi-Carrier Mobile Communications**
K. Madani, University of Westminster, London, UK

14:00-15:30 - PLENARY INVITED SESSION III

Chairman: A. Vandervorst, Microwaves U.C.L., Louvain-La-Neuve, Belgium

- PIII.1. Chaos In Microwave Systems**
M. Sobhy, Electrical Engineering Dept., The Univ. of Kent, Kent, UK
- PIII.2. Design Techniques For Non-Linear Microwave Circuits**
Franco Giannini, Universita Degli Studi di Roma, Tor, Vergata, Roma, Italy
- PIII.3. Advances In Power Amplifiers For Mobile Handsets**
Fazal Ali, Nokia Mobile Phones, San Diego, CA, USA

16:00-17:40 - CLOSING SESSION

Chairman: R. Sorrentino, Inst. of Electronics, University of Perugia, Italy

Overview of Millimeter-Wave Monolithic Circuits

Y. Isota, Mitsubishi Electric Engineering, Kanagawa, Japan

Saw-Based Radio Sensor and Communication Techniques

R. Weigel, Johannes Kepler Universität Linz, Institut für Nachrichtentechnik/Informationstechnik, Linz, Austria

Franz Seifert, Technische Universität Wien, Institut für Allgemeine Elektrotechnik und Elektronik, Wien, Austria

Award of the Microwave Prize

FRIDAY, SEPTEMBER 12, 1997

09:00-15:00 - 4 PARALLEL WORKSHOPS

WORKSHOP 1: MOBILE AND PERSONAL COMMUNICATIONS

Organizer and chairman: R. Meidan, Motorola Israel, Tel Aviv, Israel

Organizer: R. B. Geller, David Sarnoff Research Center, Princeton, NJ, USA

- 09:00-09:45 **Wireless Systems - Past, Present and Future**
R. Meidan, Motorola Israel, Tel Aviv, Israel
- 09:45-10:30 **Satellite Communications: Moving from Ku-Band to Millimeter Waves**
S. Zach, G., Rabinovich, Ministry of Communications, Israel
- 10:30-11:00 Coffee Break
- 11:00-11:45 **SAW Filters in Radio Receivers**
A. Biran, RAFAEL, Israel
- 11:45-12:30 **GaAs Devices in Radio Transmitters and Receivers**
B. Maoz, Anadigics Inc., Warren, NJ, USA
- 12:30-13:30 Lunch Break
- 13:30-14:15 **Investigations on the Satellite-to-Indoor Channel Characteristics**
I. Friyges, B. Molnar, The Budapest Technical University, Hungary
- 14:15-15:00 **System Concepts, Experiments and Field Trials at 25, 42 and 60 GHz for Broadband Wireless Local Loop With Hybrid-Fibre-Millimeter-Wave**
R. Heidemann, H. Haisch, B. Junginger, The Alcatel Corporate Research Center, Stuttgart, Germany

Friday, September 12, 1997 (Cont'd)

WORKSHOP 2: BIOLOGICAL EFFECTS AND MEDICAL APPLICATIONS OF MICROWAVES

Joint chairmen and organizers: **A. Rosen**, David Sarnoff Research Center, Princeton, NJ, USA
A. Vandervorst, Microwaves U.C.L., Louvain-la-Neuve, Belgium

- 09:00-09:15 **Biological Effects**
Andre Vander Vorst, Microwaves U.C.L., Louvain-La-Neuve, Belgium
- 09:15-09:30 **Medical Applications**
Arye Rosen, David Sarnoff Research Center, Princeton, NJ, USA
- 09:30-10:15 **RF, Microwave and Laser Medical Applications**
Arye Rosen, David Sarnoff Research Center, Princeton, NJ, USA
- 10:15-10:30 **Discussion**
- 10:30-11:00 Coffee Break
- 11:00-11:30 **Hyperthermia, Review and Present Developments**
K. Ito, Dept. of Electrical & Electric Engineering, Chiba University, Chiba-Shi, Japan
- 11:30-11:45 **Discussion**
- 11:45-12:30 **Modelling of Mechanisms of Interaction**
G. D'Inzeo, Dept. of Electrical Engineering, University "La Sapienza" of Rome, Italy
- 12:30-12:45 **Discussion**
- 12:45-14:00 Lunch Break
- 14:00-14:30 **Impact of Mobilophony**
M. Stuchly, Dept. of Electrical & Computer Engineering, University of Victoria, B.C., Canada
A. Vander Vorst, Microwaves U.C.L., Louvain-La-Neuve, Belgium
- 14:30-15:00 **Discussion**

WORKSHOP 3 : MICROWAVE APPLICATIONS OF HIGH-TEMPERATURE SUPERCONDUCTIVITY

Joint chairmen and organizers: **Avi Biran**, RAFAEL, Israel
Martin Nisenoff, NRL, USA

- 08:30-09:00 **Introduction - High Temperature Superconductivity and RF Engineering**
A. Biran, RAFAEL Israel
- 09:00-09:45 **RF Properties and Microwave Applications of HTSC Thin Films**
D. Davidov, The Hebrew University, Israel
- 09:45-10:30 **Industrial Fabrications of HTS Thin Films for Microwave Applications**
H. Kinder, Technischen Univ., Munich
- 10:30-11:00 Coffee Break
- 11:00-11:45 **Space Applications (civilian & military) of HTS**
M. Nisenoff, NRL, USA
- 11:45-12:30 **HTS Active Devices and Junctions**
G. Koren, Technion, Israel
- 12:30-13:30 Lunch Break
- 13:30-14:10 **Cryogenics for HTS RF Applications**
G. Thummes, Giessen Univ., Germany
- 14:10-14:50 **HTS Filters for Wireless Communication Applications**
G. Koepf, SCT, USA
- 14:50-15:30 **HTS Components/Subsystems for Military Applications**
S. Talisa, Northrop-Grumman, USA

Friday, September 12, 1997 (Cont'd)

WORKSHOP 4: NONLINEAR MICROWAVE DESIGN

Organizer and Chairman: M. Sobhy, Electrical Engineering Dept., The University of Kent, UK

- 09:00-09:45 **Extended FDTD for Nonlinear Microwave Circuits**
N. Chen and T. Itoh, University of California, LA, USA
- 09:45-10:30 **Nonlinear Methods for Microwave Oscillator Design**
G. Olbrich, P. Russer, Technical University of Munich., Munich, Germany
- 10:30-11:00 Coffee Break
- 11:00-11:45 **Nonlinear Microwave Device Modelling Based on System Theory Approaches**
F. Filicori, V.A. Monaco, G. Vannini, A. Santarelli, University of Bologna, Italy
- 11:45-12:30 **Vector Nonlinear Transistor Characterisation**
A. Leckey, A. Greer, A. Patterson, D. Linton, J.A.C. Stewart, L. Pattison, Queens University of Belfast, Ireland
- 12:30-13:30 Lunch Break
- 13:30-14:15 **Harmonic Balance Simulation of Saturation Mechanisms in Power Transistors**
R. Trew, Case Western Reserve University, Cleveland, OH, USA
- 14:15-15:00 **Nonlinear Microwave System Design**
M. Sobhy, R. Ng, The University of Kent, UK

SHORT COURSE: CAD TOOLS OF ELECTROMAGNETIC FIELDS IN TIME AND FREQUENCY DOMAINS

Instructor: T. Weiland, Technische Hochschule, Darnstadt, Germany

Travel To Israel

The best way to travel to Israel is by air. It is recommended to contact Ortra's representative in your country (please see listing on back of brochure) for making travel arrangements.

Venue

The Conference will be held at the Jerusalem International Convention Center, in the western outskirts of the city. Registration on Sunday, September 7, and Workshops on Friday, September 12, will be held at the Holiday Inn Crowne Plaza Hotel.

Climate & Clothing

September is one of the most pleasant months in Israel. Temperatures at this time of year in Israel range between 23°C midday to 14°C in the evening. Dress will be informal throughout the Conference. No rain is expected.

Language

The official language of the Conference will be English. (Including: lectures and printed material).

Visas

Participants from most countries do not require a visa to Israel. Ortra or other travel agencies can provide you with current information. Individuals from countries without diplomatic relations with Israel should write immediately to the Secretariat, giving the following details: **full name, date and place of birth, passport number and date of issue, time of arrival and flight number.**

The Secretariat will arrange for a visa to be issued at the airport upon arrival.

Currency

The unit of currency in Israel is the New Israeli Shekel (NIS), commonly known as the Shekel. The Shekel consists of 100 Agorot, NIS 3.40 ≈ US \$1 (June 1997).

Banks

The majority of banks are open Sunday - Thursday 08:30-12:30, Fridays 08:30-12:00 and in the afternoons on Sunday, Tuesday and Thursday 16:00-17:30. All banks are closed on Saturday. Automatic banking facilities are available.

Shops

In Israel's major cities, shops are open from 09:00 in the morning until 19:00 in the evening, with an afternoon break between 13:00 and 16:00 Sunday through Thursday. Shops usually close around 14:00 on Friday.

Credit Cards

Major credit cards are accepted in most shops, restaurants and hotels in Israel, including Visa, Mastercard/Eurocard, American Express and Diners Club.

VAT & Tipping

Most bills include VAT. At hotels, however, non-Israelis paying in foreign currency are exempt from VAT. The accepted rate of service charge (tip) when not included is 10%.

Telephones

All public phones take phone cards (Telecards). International calls can be made from any public phone by using a long distance calling card or through the international operator.

Exhibition

The Microwave Exhibition held in conjunction with the Conference will take place at the Convention Center (Pinkus Hall).

Opening Hours:

Monday 8 Sept., 97 10:00 - 18:00

Tuesday 9 Sept. 97 09:00 - 18:00

Wednesday 10 Sept. 97 09:00 - 17:00

SOCIAL PROGRAM

Sunday, 7 September, 1997

20:00 Informal "Get-together" at the Holiday Inn Crowne Plaza Jerusalem Hotel

Monday, 8 September, 1997

19:30 Reception hosted by the Organizing Committee, sponsored by Hewlett Packard Israel, at the Holiday Inn Crowne Plaza Jerusalem Hotel

Tuesday, 9 September, 1997

13:40 Guided tour of historical Jerusalem, leaving from the Convention Center
19:00 Visit and reception at the Israel Museum hosted by the Jerusalem municipality

Wednesday, 10 September, 1997

19:00 Departure from the Holiday Inn Crowne Plaza to Tel Aviv-Yafo night tour and dinner, appr. return to hotel: 23:00 hrs. (optional)

Thursday, 11 September, 1997

20:00 Conference Dinner and Folklore Show at the Holiday Inn (optional)

ACCOMPANYING PERSONS' PROGRAM

All tours depart from the Holiday Inn Crowne Plaza Hotel at 09:00; Approx. return: 13:00 hrs.

Monday, September 8, 1997

Guided tour to a communal settlement (Kibbutz) in the Judean hills and Shimshon Stalactite caves

Wednesday, September 10, 1997

Guided visit of Jerusalem arts and crafts centers

Thursday, September 11, 1997

Guided tour to Israel Supreme Court, Mount Herzl, the national cemetery and the Chagall Windows at The Hadassah Medical Center, Ein Karem

REGISTRATION

Fees, in US \$

	Early *		Late **
IEEE Members	440		490
Non-Members	500		550
IEEE Students ***		180	
Other Students ***		200	
Accompanying Persons		150	
Workshops		150	
Tel Aviv-Yafo night tour on Wednesday		45	
Conference Dinner on Thursday		60	

* Payment actually received at the Secretariat by August 5, 1997.

** Payment actually received after August 6, 1997.

*** Full-time students with confirmation from their universities.

Fees include:

IEEE Members, Non-Members and Students

- Conference Kit (Program, Badge, Information, Bag)
- Book of Proceedings
- Participation in the Scientific and Social Program (except Tel Aviv-Yafo tour on Wednesday and Conference Dinner on Thursday)
- Jerusalem Tour on Tuesday
- Refreshments during meetings
- Cold plates/sandwiches during lunch breaks

Accompanying Persons

- Conference Kit (Program, Badge, Information, Bag)
- Participation in the Social Program (except Tel Aviv-Yafo tour on Wednesday and Conference Dinner on Thursday)
- Three guided half-day tours (see program)

Workshops (one day)

- Hand-out material
- Refreshments

Night Tour to Tel Aviv-Yafo on Wednesday

- Drive to Tel-Aviv and return
- Guided visit of the reconstructed harbor area of historical Yafo
- Motor tour of modern Tel-Aviv, the bustling entertainment and business center of Israel
- Typical Mediterranean Dinner

Conference Dinner on Thursday

- 4-course dinner at the Holiday Inn Crowne Plaza Hotel
- Wine
- Music
- Folklore Show

Procedure

Please complete the enclosed registration form and send it together with your payment to the Conference Secretariat. Payments can be made by bank draft or bank transfer to **Account # 142-47233, Bank Hapoalim, Branch 554, Namir Square, Tel-Aviv**; by Eurocheque (in the currency of the issuing country); by Travelers Cheques or by credit cards (Visa/Mastercard/Diners/American Express only).

All participants, after arriving in Jerusalem, are requested to apply to the Registration Desk for their Conference Kits and settlement of outstanding payments due to the organizers.

Location and Opening hours of Registration Desks:

- Holiday Inn Crowne Plaza Hotel - Sunday, Sept. 7, 16:00-20:00
- Jerusalem International Convention Center - Monday to Thursday, Sept. 8-11, 8:00-17:00

Cancellations

Only written notification by fax or e-mail will be accepted:

By July 15, 1997 - Full refund of payments received, less \$ 50 handling fee

By August 15, 1997 - 50% refund of payments received

After August 15, 1997 - No refunds

The Organizing Committee has appointed **Ortra Ltd.**, a registered travel agent, as the official organizer and travel agent for the Conference.

Rooms have been reserved at the deluxe Holiday Inn Crowne Plaza Hotel, Jerusalem (Conference Venue) and at the first class Mercure Jerusalem Gate (within walking distance from the Conference Venue). Four Points Paradise Hotel (5 minute drive from the Conference Venue) at special reduced rates. Double and single occupancy rooms will be available. All guestrooms are fully air-conditioned and include remote control color television and international direct-dial telephones.

Ortra Ltd. will offer pre and post Conference tours. Participants will be invited to make any additional reservations for tourist services in Israel as desired, such as hotel extensions, regular tours, private car tours, car rentals, touring in limousines with driver/guide, desert trips, Jordan Tours, etc..

Airport Transfers

Participants booked on the Conference Packages will be met at the airport by Ortra Ltd. Representatives at the "Tour Bus" counter, located in the Arrival Hall (after customs). Limousine transfers can be arranged by Ortra Ltd. upon request (US\$70 per seven seater car) for those participants not registered with the Conference Packages.

I. DAILY RATES

	Double Occupancy	Single Occupancy*
Holiday Inn Crowne Plaza Hotel	\$ 200	\$ 180
Four Points Paradise Hotel	\$ 105	\$ 90
Mercure Jerusalem Gate Hotel	\$ 95	\$ 85

Rates Include:

One night accommodation including Israel buffet breakfast and service charge

***Important Note:** The number of single rooms is limited. Participants requesting to share a double room should send their tourist and services forms together. The Secretariat will not accept reservations for sharing double rooms unless the forms are received together.

II. BASIC CONFERENCE PACKAGE

Sunday, September 7 - Friday, September 12, 1997

Sunday, September 7, 1997

Meeting at Ben Gurion Airport and escort to car for transfer to hotel in Jerusalem.

Monday, September 8 - Friday, September 12, 1997

Conference Program

Rates:

	Double Occupancy	Single Occupancy
Holiday Inn Crowne Plaza Hotel	\$ 1070	\$ 975
Four Points Paradise Hotel	\$ 610	\$ 520
Mercure Jerusalem Gate Hotel	\$ 555	\$ 495

Rates Include:

- Arrival transfer from Ben Gurion Airport to hotel in Jerusalem (on Sunday, September 7, 1997 only).
- 5 nights accommodation including Israeli buffet breakfast and service charge.

III. PRE-TOUR TO JORDAN AND BASIC CONFERENCE PACKAGE (JORDAN AND JERUSALEM)

Wednesday, September 3 - Friday, September 12, 1997

Wednesday, September 3, 1997

Arrival transfer from Ben Gurion Airport to hotel in Tel Aviv
Overnight, Metropolitan Hotel, Tel Aviv

Thursday, September 4, 1997

Drive from Tel Aviv to Allenby Bridge. After crossing the border, drive to Madabbah and Mount Nebo.
Continue to Amman.
Overnight in Amman in first class hotel

Friday, September 5, 1997

Drive south to Petra. Ride by horse back through the Siq Canyon to the ancient capital of the Nabateans- El Khazneh, field of Tombs, Obelisks and Al Madabah. Drive back to Amman.
Overnight in Amman in first class hotel

Saturday, September 6, 1997

Drive to Jerash to visit the ancient Roman city. Return to Amman. The remainder of the day at leisure.
Overnight in Amman in first class hotel

Sunday, September 7, 1997

Leave Amman for the Allenby bridge. Cross back into Israel and drive to Jerusalem for Symposium registration and overnight at hotel of your choice.

Monday, September 8 - Friday, September 12, 1997

As per basic Conference Package

Rates:

	Double Occupancy	Single Occupancy
Holiday Inn Crowne Plaza Hotel	\$ 1995	\$ 1570
Four Points Paradise Hotel	\$ 1550	\$ 1110
Mercure Jerusalem Gate Hotel	\$ 1495	\$ 1085

Rates Include:

- Arrival transfer (on Wednesday, September 3, 1997 only).
- 9 nights accommodation including breakfast and service charge
- Three days touring in an air-conditioned bus with licensed English speaking guide.

Rates do not include:

- Cost of Visa to Jordan
- Israeli and Jordanian border taxes
- Tips and personal expenses

Please note:

Visas to Jordan are arranged on a group basis. You are requested to advise us of the following information in order to enable us to make the arrangements.

- Full name as it appears in your passport
- Nationality and passport number
- Issue and expiration dates (**Passport must be valid for at least six months**)
- Date and place of birth

The arrangements do not include payment for the visa which is made on an individual basis directly with the Jordanian border authorities. If you apply for your own visa, please send the details to the Conference Secretariat. The cost of a visa is different for each country.

IV. BASIC CONFERENCE PACKAGE AND POST-TOUR (JERUSALEM, THE DEAD SEA AND THE GALILEE)

Sunday, September 7 - Tuesday, September 16, 1997

Sunday, September 7 - Friday, September 12, 1997

As per the basic Conference Package

Friday, September 12, 1997

Departure for a full day tour of the Judean Desert and the Dead Sea, lowest point on earth; the ancient Herodian fortress of Massada and the delightful Ein Gedi Spa. Highlights include Judean Desert; Kalia, Massada and a swim at Ein Gedi.

Overnight at hotel of your choice in Jerusalem

Saturday, September 13, 1997

Full day tour to Beit Shean, Tiberias, Capernaum, Tabgha, Mt. of the Beatitudes and the Upper Galilee Region.

Dinner and overnight at Kfar Blum Kibbutz Guesthouse

Sunday, September 14, 1997

Full day tour in the Galilee and Golan Heights including Nazareth and Safed..

Dinner and Overnight at Kfar Blum Kibbutz Guesthouse

Monday, September 15, 1997

Full day tour to Acco, Haifa and Caesarea ending in Tel Aviv.

Overnight at the Metropolitan Hotel in Tel Aviv

Tuesday, September 16, 1997

Departure

Rates:

	Double Occupancy	Single Occupancy
Holiday Inn Crowne Plaza Hotel	\$ 1815	\$ 1440
Four Points Paradise Hotel	\$ 1345	\$ 980
Mercure Jerusalem Gate Hotel	\$ 1290	\$ 955

Rates Include:

- Arrival transfer (Sunday, September 7, 1997 only).
- Nine nights accommodation including Israeli buffet breakfast and service charge
- Two dinners
- Four full days touring in an air-conditioned bus with licensed English speaking guide

Rates do not include:

- Tips and other personal expenses

IMPORTANT NOTE: *All Post Conference Workshop participants not participating in the Friday tour to the Dead Sea should deduct US \$ 65 per person from the above package prices*

**V. FULL JORDAN - ISRAEL CONFERENCE PACKAGE
(JORDAN, JERUSALEM, DEAD SEA, GALILEE)**

Wednesday, September 3 - Tuesday, September 16, 1997

As per Packages III. IV. and V.

Rates:	Double Occupancy	Single Occupancy
Holiday Inn Crowne Plaza Hotel	\$ 2750	\$ 2310
Four Points Paradise Hotel	\$ 2285	\$ 1850
Mercure Jerusalem Gate Hotel	\$ 2230	\$ 1825

Rates Include:

- Arrival transfer (Wednesday, September 3, 1997 only).
- Thirteen nights accommodation including Israeli buffet breakfast and service charge
- Two dinners
- Seven full days touring in an air-conditioned bus with licensed English speaking guide

Rates do not include:

- Tips and other personal expenses
- Israeli and Jordanian border taxes
- Cost of visa to Jordan

VI. OPTIONAL DAILY TOURS

A) Massada-Dead Sea-Ein Gedi (Spa) - Friday, September 12, 1997

The Judean Desert and the Dead Sea, the lowest point on earth; the ancient Herodian fortress of Massada and the delightful Ein Gedi Spa. Highlights include Judean Desert; Kallia, Massada, and a swim at Ein Gedi.

Price: \$ 65 per person

B) Desert Trip - Saturday, September 13, 1997

A unique way to explore the desert by special desert car. Drive eastwards from Jerusalem into the heart of the Judean Desert. Stop for a panoramic view at the top of Mount Muntar, and then continue to the magnificent natural terrace overlooking the Kidron Valley, opposite the Marsaba Monastery. Relax with a picnic lunch (included in the price). Continue to the Valley of Jericho, along Jesus' Road. Return via the cliffs of Wadi Quelt and stop above St. George's Monastery. *Modest dress required.*

Price: \$ 64 per person

CONFERENCE SECRETARIAT & TOURIST SERVICES

Current address (until July 1, 1997):

2 Kaufman St. (Textile Bldg. - 14th fl.)

P. O. Box 50432, Tel Aviv 61500, Israel

Tel: 972-3-5177888 **Fax:** 972-3-5174433

E-mail: ortra@trendline.co.il

From July 1, 1997:

1 Nirim St.

P.O. Box 9352

Tel Aviv 61092, Israel

Tel: 972-3-6384444 **Fax:** 972-3-6384455

E-mail: ortra@trendline.co.il

ORTRAÆS OVERSEAS REPRESENTATIVES

AUSTRALIA Ms. Sonia Brodman Voyager Travel Ltd. 33-41 Agnes Street Jolimont, Victoria 3002 Tel: 3-9650 5244; Fax: 3-9650 6463	GERMANY Ms. Ilona Ruffo DER Deutsches Reisburo GmbH Emil-Von-Behring Str. 6 D-6000 Frankfurt/Main 50 Tel: 69-9588 3623 Fax: 69-9588 3608	SPAIN Mr. Ignacio Asin Martinelli Viajes Iberia Congresos San Bernardo 20-6 28015 Madrid Tel: 91-5328 137 Fax: 91-5227 210
BELGIUM Mr. Jos Bossaer Travex Voyages-Reizen Parvis de la Trinite 8 B-1050 Brussels Tel: 2-537 1100 Fax: 2-537 9594	HUNGARY Mr. Peter Hoka Chemol Travel 7-9 Dea'k F. Str. 1052 Budapest Tel: 1-2669 443 Fax: 1-2668 778	SWEDEN Ms. Erika Charbonnel Israel Tours Riddargatan 7A, Str., P.O. Box 55624 S-102 14 Stockholm Tel: 8-661 2500 Fax: 8-660 8800
CANADA Ms. Diane Reitz Aufgang Travel 3528 Bathurst Street Toronto, Ont. M6A 2C6 Tel: 416-789 7117 Fax: 416-789 9561	ITALY Mrs. Graziella Telo DOMM International Srl Via Rossini 1 20122 Milan Tel: 2-783 553/4 Fax: 2-76000 181	SWITZERLAND First Business Travel International Hotelplan, Habsburgstrasse 9 CH-8031 Zurich Tel: 1-272 4472 Fax: 1-277 8590
DENMARK Mrs. Birgitte Christensen Israel Rejser c/o Profil Rejser Gl. Kongevej 3-5 DK-1610 Copenhagen V Tel: 31 22 55 88 Fax: 31 24 17 78	JAPAN Mr. Toshihiko Watanabe Tokyo Air-Sea Travel Service Ltd. Nihonseimei Akasaka No.2 Bldg. 7-1-16 Akasaka Minato-Ku, Tokyo 107 Tel: 3-5413 1902 Fax: 3-5413 1915	TURKEY Mr. George Kudian Kongresist Macka Cad 23/1 Daire 3 80680 Istanbul Tel: 212-231 2772 Fax: 212-233 7678
FINLAND Ms. Sari Saarinen Finlandia - Israel Tours Kruunuvuorenkatu 5 A 00160 Helsinki Tel: 9-478 4700 Fax: 9-641 355	THE NETHERLANDS Ms. Georgette Kroonder N.E.T. World Tourist Organization De Boelelaan 7 1083 HJ Amsterdam Tel: 20-646 4747 Fax: 20-646 4242	UNITED KINGDOM Mrs. Val Hopkins Premierpace Security House Frog Lane Royal Tunbridge Wells Kent TN1 1YT Tel: 1892- 522 125 Fax: 1892-535 316
FRANCE Ms. Françoise Monin TCI CONGRES 12 Rue du Helder 75009 Paris Tel: 1-4824 3004 Fax: 1-4824 3005	NORWAY Mr. Bøjrjn Gundersen Israel Tours Akerгатen 47 N-0180 Oslo Tel: 22-41 42 00 Fax: 22 33 73 43	UNITED STATES Ms. Ruthann Swartz Ayelet Tours Ltd. 21 Aviation Road Albany, NY 12205 Tel: 1-800-237 1517 Fax: 518-437 0699

THE 27TH EUROPEAN MICROWAVE CONFERENCE

Jerusalem, September 8-12, 1997

REGISTRATION FORM

(Please complete the form below, **in clear capital letters**, and return to:
Ortra Ltd. P.O. Box 9352, Tel Aviv, Israel, 61092; Fax.: 972-3-6384455)

Title: Prof. Dr. Mr. Ms.

Surname _____ First Name _____

Affiliation _____

Mailing Address Home Institution _____

City _____ Code/Zip _____ Country _____

Telephone _____ Fax _____ E-mail _____

Accompanying Persons

Surname _____ First Name _____

Surname _____ First Name _____

Registration Fees: (in \$ US)

	Early *		Late **
IEEE Members	440		490
Non-Members	500		550
IEEE Students ***		180	
Other Students ***		200	
Accompanying Persons		150	
Workshops / Short course		150	
Tel Aviv-Yafo night tour on Wednesday		45	
Conference Dinner on Thursday		60	

I would like to register for the following:

Workshop 1 Workshop 2 Workshop 3 Workshop 4 Short course

* Payment actually received at the Secretariat by August 5, 1997.

** Payment actually received after August 6, 1997.

*** Full-time students with confirmation from their universities.

Attached is payment in the amount of US\$ _____ made out to **Ortra Ltd.**

Bank Draft # _____ Bank Transfer to account # 142-47233, Bank Hapoalim, Branch 554, Namir Square, Tel Aviv.

Copy of bank transfer enclosed

Eurocheque # _____ (in the currency of the issuing country).

Please charge my **Mastercard/Eurocard Visa American Express Diners**

Card # _____ Expiration Date _____

Signature _____ Date _____

THE 27TH EUROPEAN MICROWAVE CONFERENCE

Jerusalem, September 8-12, 1997

TOURIST SERVICES FORM

(Please complete the form below, in clear capital letters, and return to:
Ortra Ltd. P.O. Box 9352, Tel Aviv, Israel, 61092; Fax.: 972-3-6384455)

Title: Prof. Dr. Mr. Ms.

Surname _____ First Name _____

Affiliation _____

Mailing Address Home Institution _____

City _____ Code/Zip _____ Country _____

Telephone _____ Fax _____ E-mail _____

Accompanying Persons

Surname _____ First Name _____

Surname _____ First Name _____

Please make the following reservations:

A. Daily Accommodation

Please reserve a double room single room at the:

- **Holiday Inn Crowne Plaza** • **Four Points Paradise Hotel** • **Mercure Jerusalem Gate Hotel**

From: _____ To: _____ Total no. of nights: _____

B. Conference Packages

I require a double room single room at the:

- **Holiday Inn Crowne Plaza** • **Four Points Paradise Hotel** • **Mercure Jerusalem Gate Hotel**

for the designated packages below:

Basic Package II. (Jerusalem) - September 7-12, 1997

Basic Package & Pre-Tour III. (Jordan and Jerusalem) - September 3-12, 1997

Basic Package & Post-Tour IV. (Jerusalem, Dead Sea, Galilee) - September 7-16, 1997

Full Jordan-Israel Package V. - September 3-16, 1997

Daily tours : **Massada-Dead Sea-Ein Gedi (Spa)** - Friday, September 12, 1997
Desert Trip - Saturday, September 13, 1997

C. Transfers (included in packages)

I require a transfer from Ben Gurion International Airport. I am scheduled to arrive on:

Date _____ Flight # _____ From _____ Time _____

I shall inform you of flight details at a later date, but no later than one week prior to arrival.

Attached is payment made out to **Ortra Ltd.** in the amount of US\$ _____.

Bank Draft # _____ Bank Transfer to account # 142-47233, Bank Hapoalim Branch 554, Namir Square, Tel Aviv.

Copy of bank transfer enclosed

Eurocheque # _____ (in the currency of the issuing country only).

Please charge my **Mastercard/Eurocard** **Visa** **American Express** **Diners**

Card # _____ Expiration Date _____

Signature _____ Date _____

